REMARKS

No claim amendments or cancellations are presented herein. Claims 1-8, 22, 23, 25, 61-63, and 65-75 are currently pending in this application. Claims 22, 23, 25 and 71-75 stand withdrawn. Claims 9-21, 24, 26-60 and 64 were previously cancelled without prejudice or disclaimer. Applicant respectfully reserves the right to prosecute the subject matter of the cancelled claims in one or more continuation or divisional applications.

Rejections

Rejections under 35 U.S.C. § 103

Claims 1-8, 61-63 and 65-70 were rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Panis *et al*, in view of Fretz *et al*, European Patent No. 0147236, Cino *et al* (U.S. Patent No. 5,527,702) and Goodrich Jr., *et al* (U.S. Patent No. 5,800,978). According to the Office Action, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to provide a method for the recovery of cryopreserved plant cells as disclosed by Panis *et al*, using the washing technique of Goodrich, Jr. *et al* and techniques of Fretz *et al* on a regeneration medium containing a stabilizer as disclosed by the EP Patent and further to select for *Taxus* plant cells as disclosed by Cino *et al*. *See* Office Action, page 5.

Applicant respectfully disagrees and traverses this rejection.

The cryopreservation recovery method of independent claim 1 for example, and each of the claims depending therefrom, requires at least each of the elements of: obtaining cryopreserved plant cells, thawing the cryopreserved plant cells by heating the cells to a temperature above which the plant cells are not frozen to obtain thawed plant cells, serially washing the thawed plant cells in medium having successively reduced concentrations of at least one cryoprotective agent, said medium also containing a stabilizer, and removing the cryoprotective agent and recovering the thawed plant cells. Applicant submits that there is no reason to modify the teachings of Goodrich, Jr. *et al* or Panis *et al*, or to combine the teachings of Goodrich, Jr. *et al* and Panis *et al* with the remaining cited references, in order to reach the claimed invention.

Applicant respectfully notes that the Office Action acknowledges that Panis *et al* do not disclose incubation techniques in a medium containing cryoprotectant and stabilizer or the use of *Taxus brevifolia* plant cells. Applicant also submits that any washing steps of Panis *et al* are a one-step wash with a change to cryoprotectant free medium, and are not the washing of thawed plant cells in media having *successively reduced* concentrations of at least one cryoprotective agent, as is required by the claimed subject matter. The results obtained by Panis *et al* regarding the washing of thawed cells teach away from the combination of this reference with the other cited references to reach the claimed invention, since Panis *et al* state that "removal of the cryoprotectant solution and its replacement by cryoprotectant-free liquid medium resulted in the complete loss of regrowth capacity, the cells becoming white."

It is noteworthy that Panis *et al* fail to include the washing of thawed plant cells as an element of their protocols in the "Discussion" portion of the paper. For example, Panis *et al* state that "... thawing is carried out rapidly to prevent damaging recrystallization by any remaining intracellular ice. The cells are then transferred without washing to a semi-solid medium containing BA." *See* Panis *et al*, page 347, lines 20-23 ("Discussion" section). Furthermore, Applicant submits that Panis *et al* are silent to any teaching or contemplation of the washing of thawed plant cells in media having *successively reduced* concentrations of at least one cryoprotective agent. Applicant submits that this is because a fair reading of Panis *et al* teaches away from the washing of thawed cells based on the negative results achieved by Panis *et al* from their limited washing efforts.

Applicant also submits that the teachings of Fretz *et al* teach away from the washing of cells following thawing, and that Fretz *et al* certainly teach away from the washing of thawed plant cells in media having *successively reduced* concentrations of at least one cryoprotectant. Fretz *et al* state that "[a]ny washing of the cells after thawing in order to remove the cryoprotectants was avoided, and cells were plated on solidified L3 medium or transferred directly to liquid medium." *See* Fretz *et al*, p. 142, bottom of 1st col (emphasis added). Hence, Fretz *et al* further teach away from the claimed invention. , at least with respect to the washing of thawed plant cells in media having *successively reduced* concentrations of at least one cryoprotectant. Furthermore, Applicant submits that there would be no reason for one to look at any reference for a washing step in light of the statement of Fretz *et al*.

Furthermore, and as noted previously during prosecution, Goodrich, Jr. *et al* appear to be directed to techniques and compositions for the cryopreservation of animal and human cells. Applicant submits that one of ordinary skill in the art might reasonably expect cryopreservation techniques specific to animal cells to perform differently when applied to plant cells, and therefore the person of ordinary skill would not rely on the teachings regarding the cryopreservation of animal cells (such as, for example, Goodrich, Jr. *et al*) for techniques adapted for use in the cryopreservation of plant cells.

This is further supported by the Declaration of Michael E. Horn, Ph.D., under 37 C.F.R. §1.132 of record, wherein it is stated that

> ... in contrast to the stated objective of the washing in Example 4 of Goodrich, none of the relevant pending claim elements are directed to returning the plant cells to isotonic conditions. The issue of isotonicity highlights the differences between handling animal and plant cells. Because of the plant cell wall, such cells can be turgid in a hypotonic condition or plasmalyzed in a hypertonic situation. Leaving a plant cell in the plasmalyzed condition too long will result in irreparable harm and death....

See Horn Declaration, paragraph 11. As further stated in the Declaration, "... it is unreasonable to suppose that any method that was designed for use using red blood cells, which do not have a cell wall, would be useful using plant cells or vice versa." *See* Horn Declaration, paragraph 11.

It is also noted by Applicant that the Office Action states that the steps of washing cells with cryoprotectant is well known. However, it is noteworthy that none of the cited references contemplates the washing of thawed plant cells in media having *successively reduced* concentrations of at least one cryoprotective agent. Applicant respectfully reiterates the statement from Dr. Horn's Declaration that "... a person of ordinary skill in the art of plant cell culture would not view methods exemplified on human blood cells to be *per se* adaptable to plant cells with any reasonable expectation of success." *See* Horn Declaration, paragraph 10.

Accordingly, Applicant submits that the claims are not obvious over Panis *et al*, in view of Fretz *et al*, European Patent No. 0147236, Cino *et al* (U.S. Patent No. 5,527,702) and newly cited Goodrich Jr., *et al* (U.S. Patent No. 5,800,978). Therefore, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1-8, 61-63 and 65-70 under 35 U.S.C. § 103(a).

CONCLUSION

An indication of allowance of all claims is respectfully solicited. Early notification of a favorable consideration is respectfully requested.

Respectfully submitted,

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